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Ethnic Diversity and Social Trust: A Narrative and Meta-Analytical Review

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Abstract

Does ethnic diversity erode social trust? Continued immigration and corresponding growing ethnic diversity have prompted this essential question for modern societies, but few clear answers have been reached in the sprawling literature. Taking this as point of departure, this article reviews the existing literature on the relationship between ethnic diversity and social trust through a narrative review and a meta-analysis of 1,001 estimates from 87 studies. The review clarifies the core concepts, highlights pertinent debates, and tests core claims from the literature on the relationship between ethnic diversity and social trust. Several results stand out from the meta-analysis. We find a statistically significant negative relationship between ethnic diversity and social trust across all studies. The relationship is stronger for trust in neighbors, and when studied in more local contexts. Covariate conditioning generally changes the relationship only slightly. The review concludes by discussing avenues for future research.

Keywords: Ethnic diversity; Social trust; Immigration; Meta-analysis; Context.

Introduction

Does ethnic diversity erode social trust? In essence, the relationship between ethnic diversity and trust is the question of whether the positive interpersonal ties that make for socially cohesive societies can be preserved when societies' inhabitants to a decreasing extent share a common ethnic background. The answer to this question is crucial for understanding the potential challenges that most developed societies are facing from increasing ethnic diversity stemming from immigration and refugee settlement. It also provides a potential explanation for the challenges to governance in countries that have historically been ethnically heterogeneous (Alesina et al. 1999; Alesina & Glaeser 2004). Further, because social trust stimulates cooperation between individuals (Gächter et al. 2004), the link between ethnic diversity and trust provides a plausible answer to why ethnic diversity has been found to inhibit the enactment of redistributive welfare policies (Alesina et al. 1999; Alesina & Glaeser 2004).

The link between ethnic diversity and social trust has been studied extensively over the past almost 25 years spawning a plethora of different findings. As highlighted in recent reviews of related outcomes, the evidence on the relationship between ethnic diversity and trust is far from conclusive (Dinesen & Sønderskov 2018; Schaeffer 2014: Ch. 2; van der Meer & Tolsma 2014). Therefore, to gauge the major insights that this line of work has produced, we systematize the literature in a narrative review combined with a quantification of key overall patterns in the literature through a meta-analysis. Previous reviews of trust and the related wider phenomena of social cohesion and social capital, have either been purely narrative (Dinesen & Sønderskov 2018; Koopmans et al. 2015; Morales 2013; Portes & Vickstrom 2010), or quantified results using crude "counting strategies" (i.e. tallying significant relationships) (Schaeffer 2014: Ch. 2; van der Meer & Tolsma 2014), which might overlook more subtle aggregate patterns. Given the mature state of the literature, the logical next step is to conduct a proper meta-analysis directed at quantifying the overall relationship based on reported estimated coefficients and associated uncertainty, as well as breaking this down by theoretically pertinent categories.

In the following, we first clarify the core concepts before pinpointing three essential debates in the literature. Then, based on the results from the meta-analysis, we highlight key findings in the literature. Lastly, we conclude the review by discussing avenues for future research on the relationship between ethnic diversity and social trust.

Conceptual clarification

Given the often relatively loose use of the core concepts of the review—social trust and ethnic diversity—it is important to clarify how we understand them, as this carries implications for the specific mechanisms stipulated in various theoretical accounts.

Social trust refers to trust in human targets, but the specific targets vary. Here, we focus on four conceptually and empirically distinct forms of social trust (Freitag & Bauer 2013). First, we look at trust in strangers, also referred to as *generalized social trust*. Due to its positive effects on cooperation between strangers (Gächter et al. 2004), some argue that this is the most important form of social trust in modern societies that are characterized by a large number of interactions between strangers (Dinesen et al. 2019a; Sønderskov 2011). We also examine *out-group trust*, which refers to trust in members of salient ethnic out-groups (as defined below). This form of trust is akin to measures of out-group sentiments, and can be viewed as an extension of these (or vice versa). Similarly, we also analyze *in-group trust*, which is again based on salient social distinctions (e.g. trust in co-ethnics or trust in fellow natives). As with other group sentiments, out-group and in-group trust are not—at least conceptually—mirror images (Brewer 1999). *Trust in neighbors* is trust in people with whom one shares a residential environment, and thus differs from the other forms of trust by

being geographically bounded. This form of trust is therefore particularly relevant when ethnic diversity is studied in local residential contexts.

Ethnic diversity can be conceptualized both broadly and narrowly. The narrow conception focuses strictly on ethnic diversity *per se* understood as ethnic fragmentation (fractionalization)—that is, the composition of a given context as a function of the number and size of different ethnic groups (Page 2008; Koopmans & Schaeffer 2015). However, most work on the relationship between ethnic diversity and social trust conceptualizes ethnic diversity more broadly (Hewstone 2015). This line of work essentially uses ethnic diversity as an umbrella term connoting different aspects of the ethnic composition of a given setting, including ethnic diversity (fractionalization) *per se*, but also concentration or polarization of ethnic groups. The broader usage probably stems from the fact that in most developed countries—the primary settings of the debate about the relationship between ethnic diversity and trust—these different phenomena tend to overlap to a very considerable extent (Schaeffer 2013), and are therefore used synonymously. To align with most previous studies, and provide a more comprehensive overview of the literature, we employ this broader conception of ethnic diversity. Yet, we acknowledge that this distinction can be consequential for the conclusion reached—e.g. through the choice of analytical strategies—as we discuss further below.

Also pertaining to the conceptualization of ethnic diversity is the fundamental question of what constitutes ethnicity. We approach this pragmatically by employing a relatively broad definition in line with common usage in the literature. More specifically, following Weber, we define “ethnic groups” as those human groups that entertain a subjective belief in their common descent’ (Weber 1987 [1922]: 389), which may also entail a shared language, religion, nationality, and phenotype. Accordingly, our definition of ethnic diversity refers to ethnic, linguistic, religious, national, and phenotypic diversity.

People may experience ethnic diversity in different social contexts, including in residential settings, workplaces, schools, and voluntary associations. Yet, the vast majority of studies have focused on residential settings, which therefore form the cornerstone of the review (the meta-analysis is restricted to this subset of studies). We conceptualize “residential context” very broadly including local neighborhoods, but also residential contexts understood in a more aggregate sense, including municipalities, metropolitan areas, regions, and countries.

Key debates in the literature

We structure our review of the literature around three key debates, each relating to pertinent theoretical and methodological questions regarding the relationship between ethnic diversity and social trust. From each debate, we derive testable implications that we subsequently assess empirically in the meta-analysis.

Debate 1: Why does ethnic diversity erode trust?

A range of related theoretical accounts have been put forward to explain the proposed negative relationship between ethnic diversity and the various types of social trust. Clearly distinguishing between the different accounts is complicated by the fact that they differ in scope and specificity. To be faithful to the initial theorizations, we present the various accounts in relation to the specific types of trust they purport to explain, but at the same time seek to draw common threads.

As a common basis, most accounts implicitly or explicitly assume that people partly infer the trustworthiness of others based on cues from their local environment, including the ethnic background of other people they encounter in this context (Glanville & Paxton 2007; Ross, Mirowsky & Pribesh 2001). Further, it is often argued that greater proximity to interethnic out-groups—i.e. when ethnic diversity is experienced more locally and members of ethnic out-groups therefore are more directly visible—is more consequential for social trust (Dinesen & Sønderskov 2015).

One account posits that mere exposure to people of different ethnic background erodes social trust (Dinesen & Sønderskov 2015). This approach does not impose any assumptions regarding the mode or form of interaction between people in a given context. It is simply “being around” interethnic others that is proposed to influence trust, although this influence might be accentuated or mitigated by specific forms of interactions (e.g. competition or positive contact). This account builds on the assumption that people display *heterogeneity* or *out-group aversion* (Alesina & Ferrara 2002; Olson et al. 2005). That is, they trust those who are different from themselves less, due to similarity being an indicator of shared norms and other behavior-regulating features relevant for trust. By implication, because ethnicity is one—often highly visible—cue of similarity, social trust is predicted to be lower in ethnically diverse settings, where such cues are more frequent. The out-group aversion account has primarily been applied to explain trust in neighbors and generalized social trust. It applies straightforwardly to the former—at least when diversity is measured (relatively) locally. When one’s environment (neighborhood) is composed of more ethnically dissimilar people, who one trusts less, this lowers the trust in the average neighbor. Yet, this mechanism may also extend to generalized social trust. Because people evaluate the trustworthiness of the generalized other partly based on what they experience locally (Glanville & Paxton 2007), exposure to more members of ethnic out-groups in these surroundings—whom they tend to trust less—implies a larger dose of negative cues regarding the trustworthiness of others in general (Dinesen & Sønderskov 2015; 2018). However, since the environmental link is weaker, so might the association between ethnic diversity and generalized trust be.

Given its general and assumption-free character, the “mere exposure” account may also extend to group-based forms of trust. However, the link between ethnic diversity and these forms of trust has—presumably due to conceptual proximity to group-based attitudes more generally—been explained with reference to theories of group threat and realistic conflict (sometimes labelled “conflict theory” in work on trust). Beyond mere exposure to ethnic out-groups, these theories underline group *competition*—typically over material interests, but potentially also over symbolic ones—as the driving mechanism (Blalock 1967; Blumer 1958). In its weaker variant, this account posits that group competition lowers out-group trust as a manifestation of out-group hostility. Stronger versions of this account additionally predict that in-group trust also increases as a function of being surrounded by more ethnic out-groups, thus implying an inverse relationship between trust in ethnic out- and in-groups (Brewer & Miller 1984). While the connection to out-group trust—and potentially also in-group trust—is obvious, group threat accounts less straightforwardly apply to generalized social trust and trust in neighbors, which are evaluations of aggregates of people without a specific ethnic group component (Dinesen et al. 2019a).

In his much discussed “constrict theory”, Putnam (2007) presented an account explaining why ethnic diversity may erode social trust, independent of the specific target. This is premised on the idea that ethnic diversity leads to social isolation. That is—using Putnam’s famous metaphor—people “hunker down” in more ethnically diverse areas. Because ethnic diversity is expected to induce such general anomie, this mechanism predicts that ethnic diversity lowers social trust of all types, including both out- and in-group trust. As such, it is the most daring and wide-ranging account suggested to link ethnic diversity and social trust.

Yet, the generality of Putnam’s “constrict theory” comes at the cost of specificity regarding the mechanisms explaining exactly how ethnic diversity brings about anomie. Some authors have therefore tried—inspired by related fields studying public goods production (e.g., Habyarimana et al. 2007; Page 2008) or crime (Sampson et al. 1997)—to flesh out potential (sub-)mechanisms explaining anomie. Schaeffer (2013) and Koopmans et al. (2015) synthesize three. First, as a consequence of people’s inherent preference to interact with people like themselves (i.e. to display homophily) (Lazarsfeld & Merton 1954), ethnically diverse settings might be less socially integrated (e.g. in terms of density of acquaintanceship and friendship networks). This reduces the potential for sanctioning freeriders and limits the flow of information, which both lay the

foundation for trusting others. Second, ethnic diversity might result in preference diversity (i.e., fewer shared collective goals), thereby lowering people's expectations that collective endeavors are possible, but also creating incentives to manipulate process and agenda (Page 2008). Both set people further apart. Third, ethnic diversity might inhibit communication—and ultimately coordination—due to linguistic and cultural differences, which makes trusting others more risky. Importantly, other people who live in such disintegrated environments are considered less trustworthy, irrespective of whether they are in- or out-group members themselves, because their behavior is not constrained by the social structure in the local environment. These inferences may—in an attenuated form—extend beyond the local area to trust in specific groups as well as to trust in other people more generally. Empirically, authors have tried to adjudicate between these sub-mechanisms by comparing the explanatory power of diversity indices capturing different types of ethnicity (e.g. linguistic or phenotypic) (Lancee & Dronkers 2011; Leigh 2006) or different types of diversity (e.g. concentration or polarization measures) (Koopmans & Schaeffer 2015; Schaeffer 2013), both purported to correspond with specific mechanisms. However, this approach may come with the problem of these ethnic diversity measures being highly correlated, which makes it difficult to distinguish between them empirically (Schaeffer 2013).

Testable implications. The various theories often yield parallel predictions and it is therefore challenging to adjudicate their relative explanatory power. Yet, we can partly address their leverage indirectly in a number of ways in the meta-analysis. First, we can address the general assumption that greater proximity to ethnic out-groups is more consequential for social trust by comparing the effects of ethnic diversity measured in context units of different levels of aggregation—from immediate neighborhoods to the whole country. A failure to see stronger effects for more local contexts—where we can more safely infer proximity to out-groups—would challenge this assumption (Dinesen & Sønderskov 2015). Second, by comparing the effect of ethnic diversity on different types of trust, we can directly assess Putnam's constrict theory. If the anomie mechanism stipulated by constrict theory is correct, we should see an across-the-board negative effect on all forms of social trust (although perhaps not necessarily of the same magnitude). Third, if we observe sparse or no effect of ethnic diversity on out-group and, to a lesser extent, (a positive effect on) in-group trust, compared to other forms of trust, this speaks against mechanisms associated with group threat that specifically predict effects for such group-based forms of trust. By implication, this would also question their potential application to other forms of social trust. Fourth, while we cannot adjudicate between the various anomie sub-mechanisms, we can assess the ability to distinguish between them through different diversity measures by comparing diversity effects in models including, respectively, one and several diversity measures simultaneously.

Debate 2: Can contact alleviate the negative effect of ethnic diversity?

The majority of work has focused on explaining the negative relationship between ethnic diversity and social trust. However, a line of research, drawing on “contact theory” from work on intergroup relations within social psychology (Allport 1954; Pettigrew 1998), has suggested that the effect of ethnic diversity may in fact depend on the type of interactions that occur in ethnically diverse surroundings (e.g. Schmid et al. 2014; Stolle et al. 2008; Uslaner 2012). More specifically, this perspective makes the distinction between *exposure* to and meaningful *contact* with interethnic others. Whereas “exposure” makes no assumptions about the type and quality of interactions, “contact” refers to more intimate interactions with out-group members (e.g. having regular conversations etc.) (Dinesen & Sønderskov 2015).

According to the original formulation of contact theory, meaningful contact with ethnic out-groups may—under certain facilitating conditions (Allport 1954)—reduce erroneous negative stereotypes about these groups, and thereby build positive intergroup relations (Allport 1954; Brown & Hewstone 2005). The segue to out-group trust is therefore straightforward; positive interethnic interactions may reduce negative

stereotypes about ethnic out-groups (the original contact claim), which then translates into higher trust in these groups (Rudolph & Popp 2010). As far as out-group and in-group trust are each other's opposites, interethnic contact may also reduce in-group trust, although the assumption of inverse effects has been put into question (Brewer 1999; Putnam 2007). The contact mechanism may also predict a positive relationship between ethnic diversity and trust in neighbors; more positive interactions with interethnic others in a local context could increase trust in others (neighbors) in this setting. Whether contact effects can extend beyond that of specific groups to other people in general (and thus to generalized social trust) is questionable given the relatively restricted circumstances under which the original contact claim has been found to work (Brown & Hewstone 2005; Dinesen et al. 2019a), but this could be taken as one implication of theories of secondary transfer (i.e. contact effects extending to out-groups beyond those with whom one has contact) (Hewstone 2015).

Testable implications. Empirically, the contact perspective has been assessed in a number of ways. One approach, attempting to reconcile the potential positive and negative diversity effects, includes survey measures of actual interethnic contact (e.g. having friends of different ethnic background) together with the ethnic diversity measure to examine how this impinges on the relationship between the latter and social trust. Because ethnically diverse settings also give rise to more interethnic contact (Schmid et al. 2014), this may lead to countervailing influences of ethnic diversity on social trust; ethnic diversity may have the hypothesized direct negative impact on social trust, but at the same time stimulate interethnic contact, which then has a positive effect on trust (Laurence 2011; Schmid et al. 2014; van der Meer & Tolsma 2014). This implies that we must control for interethnic contact to isolate the (potential) erosive consequences of ethnic diversity. We assess results from this approach in the meta-analysis. Further, we narratively review evidence for the role of contact produced by two alternative approaches: examining how interethnic contact moderates the effect of ethnic diversity on social trust (i), and scrutinizing the link between diversity and trust in contexts that are particularly "contact-prone" (e.g. schools or workplaces) (ii).

Debate 3: Is ethnic diversity just a placeholder for social disadvantage?

A frequently raised criticism of the ostensible negative relationship between ethnic diversity and social trust is that ethnic diversity is in reality just a placeholder for social disadvantage and associated aspects such as crime (Abascal & Baldassari 2015; Sturgis et al. 2011). That is, the apparent negative ethnic diversity effect on social trust may be confounded by being deprived or marginalized oneself, or by living in a deprived or crime-ridden context. This criticism is especially pertinent given that the vast majority of existing studies of the relationship between ethnic diversity and social trust exclusively relies on cross-sectional observational data (for recent exceptions, see Dinesen et al. 2019a; Finseraas et al. 2019). Consequently, the estimated relationship is vulnerable to both *self-selection* (i.e. people sorting into ethnic contexts based on their antecedent level of trust or other factors related to both) and *confounding* by other features of the context. An obvious cause of self-selection is sorting based on ethnic background (ethnic minority status is a form of disadvantage in most contexts); because ethnic and racial minorities are generally less trusting than majorities *a priori* (Dinesen & Hooghe, 2010; Smith 2010), and because more minorities per definition live in more ethnically diverse areas, this may account for the negative relationship between ethnic diversity and social trust (a so-called *compositional effect* as opposed to a *contextual effect* of ethnic diversity). Economic inequality or other forms of socioeconomic disadvantage in the local area are alternative explanations of social trust that plausibly also correlate with ethnic diversity, and may therefore confound the relationship between the two.

Both concerns can in theory be addressed by controlling statistically for potentially confounding factors—social disadvantage or otherwise—at the individual level and the contextual level, in order to obtain the true diversity effect on trust. This in turn raises the critical question of which covariates to control for. This is

challenging to determine because the causal ordering between ethnic diversity and most potential control variables is rarely well established (of course, for some relatively fixed individual traits, such as ethnic minority status, this is less of an issue). For example, is ethnic diversity causally prior or posterior to contextual socioeconomic disadvantage and crime? Or, put differently, are the latter two variables confounders or mediators of the relationship between ethnic diversity and social trust? This issue is perhaps especially pertinent for crime—after all, social disorganization theory holds that ethnic diversity is a cause of crime exactly for some of the reasons stipulated in the anomie argument discussed above (Shaw & McKay 1942; Sampson et al. 1997). This causal indeterminacy plausibly partly explains why existing studies have inconsistently included control variables, especially at the contextual level.

Testable implications. Given the challenges involved with specifying the correct statistical model, it is arguably more prudent at this point to examine whether and how various modeling choices influence the estimated relationship between ethnic diversity and social trust. That is, under the assumption that a covariate is causally prior to both ethnic diversity and trust, to what extent does it affect their estimated relationship? In the meta-analysis, we therefore scrutinize how including indicators of the following four commonly employed classes of control variables shape the connection between ethnic diversity and trust: individual ethnic and racial minority status (i), socioeconomic status (ii), contextual socioeconomic deprivation (iii), and contextual crime (iv).

Data and methods

In the following, we briefly describe how we have generated the data used in the meta-analysis, as well as give a non-technical explanation of the meta-analytical approach applied. In the Online Supplement, we describe the data generation, the sample and the meta-analytical approach at length. The Online Supplement also features a list of all studies (including their study-pooled estimate) included in the meta-analysis and displays results from alternative meta-analytical approaches, as well as tests for publication bias.

Protocol for generating the universe of relevant studies and estimates

The data used in the meta analysis below is collected as a part of a larger project that seeks to systematize the literature on the relationship between ethnic diversity and social trust (Dinesen et al. 2019b). Using the Web of Knowledge electronic database and keywords like “ethnic diversity” or “racial diversity” and “social trust” or “social capital”, we identified approximately 4,000 potentially relevant studies. In the meta analysis below, we use 1,001 quantitative estimates (and associated uncertainty) of the relationship between ethnic diversity and social trust, originating in 87 studies. The relevant studies and estimates were identified using a detailed protocol describing the inclusion criteria (e.g. how trust and ethnic diversity are defined, the unit of analysis etc.). The full protocol is reported in Online Supplement A. As we explain in Online Supplement A, in this specific analysis we delimit the sample generated by the protocol to studies that focus on the residential context (i), study individual-level trust (ii), and employ ethnic diversity measures based on administrative data (as opposed to subjective assessments) (iii). Table D1 in Supplement D lists the included studies as well as various descriptive information about them, e.g., the number of estimates they each contribute to the meta-analysis.

The meta-analytical approach

The rationale behind a meta-analysis is to go beyond specific studies and their idiosyncrasies by pooling their results to generate an overall meta estimate summarizing the effect of a given intervention on a given outcome. In our case, where we are generally working with non-experimental data, the ambition is, more modestly, to provide a meta estimate of the relationship between ethnic diversity and social trust. In contrast to two previous related quantitative reviews (Schaeffer 2014; van der Meer & Tolsma 2014), we go beyond

simply counting significant relationships. The meta-analysis produces an overall meta estimate based on the individual studies and weights the included estimates by their uncertainty, thereby giving importance to more precise results.

Because studies report different types of effect estimates (e.g., linear or logit coefficients) and uncertainty estimates, we transform them to partial correlations and associated standard errors to establish a common metric (see Online Supplement C for details). A partial correlation is the correlation between ethnic diversity and social trust that is statistically adjusted for all other variables contained in the respective regression model. The partial correlation is bounded between -1 and 1 (perfect negative and positive association, respectively). Yet, in our application it is likely to be much smaller given that we are examining between-context variation in trust (potentially stemming from contextual ethnic diversity), which typically only constitutes around 5 to 10% of the variation in trust. This restricts the potential range of the partial correlation (see Online Supplement C for further elaboration). To illustrate, in the highly unlikely event where the entire 10% contextual variation in trust can be attributed to ethnic diversity alone, the partial correlation coefficient would be $\rho_{xy.z} = \sqrt{0.1} \approx 0.32$ and $R^2 = 0.1$, despite the fact that the association would be perfect.

To analyze the meta data, we use meta-analytical multilevel random effects models as implemented in the *R metafor* package version 2.1-0 (Viechtbauer 2010). The random effects meta-analysis is especially advantageous for our purposes of examining the systematic variation in the partial correlation across studies to gauge how features of study design (outcome, context size, specification etc.) influence the overall meta estimate.

A cardinal assumption of conventional meta-analyses is that each included estimate (partial correlation) derives from an independent sample. In our case, many estimates come from the same or partly overlapping samples, thereby leading to dependencies between them. We can partly address this by including random effects for the data set used (e.g. the European Social Survey) (Konstantopoulos 2011). Moreover, we follow Card (2015), and apply a two-step procedure. First, we meta-analyze the coefficients of each study, thereby obtaining an overall meta-estimate per study that we call the *study-pooled estimate* (reported in Figure 1 below). Second, we then meta-analyze the study-pooled estimates to get the *overall meta estimate* of the relationship between ethnic diversity and social trust. For further details on the meta-analytical procedure applied, how it allows us to investigate the importance of moderating study characteristics (e.g., type of trust or context size), and how it compares to alternative meta-analytical procedures, see Online Supplements C, E, F and G.

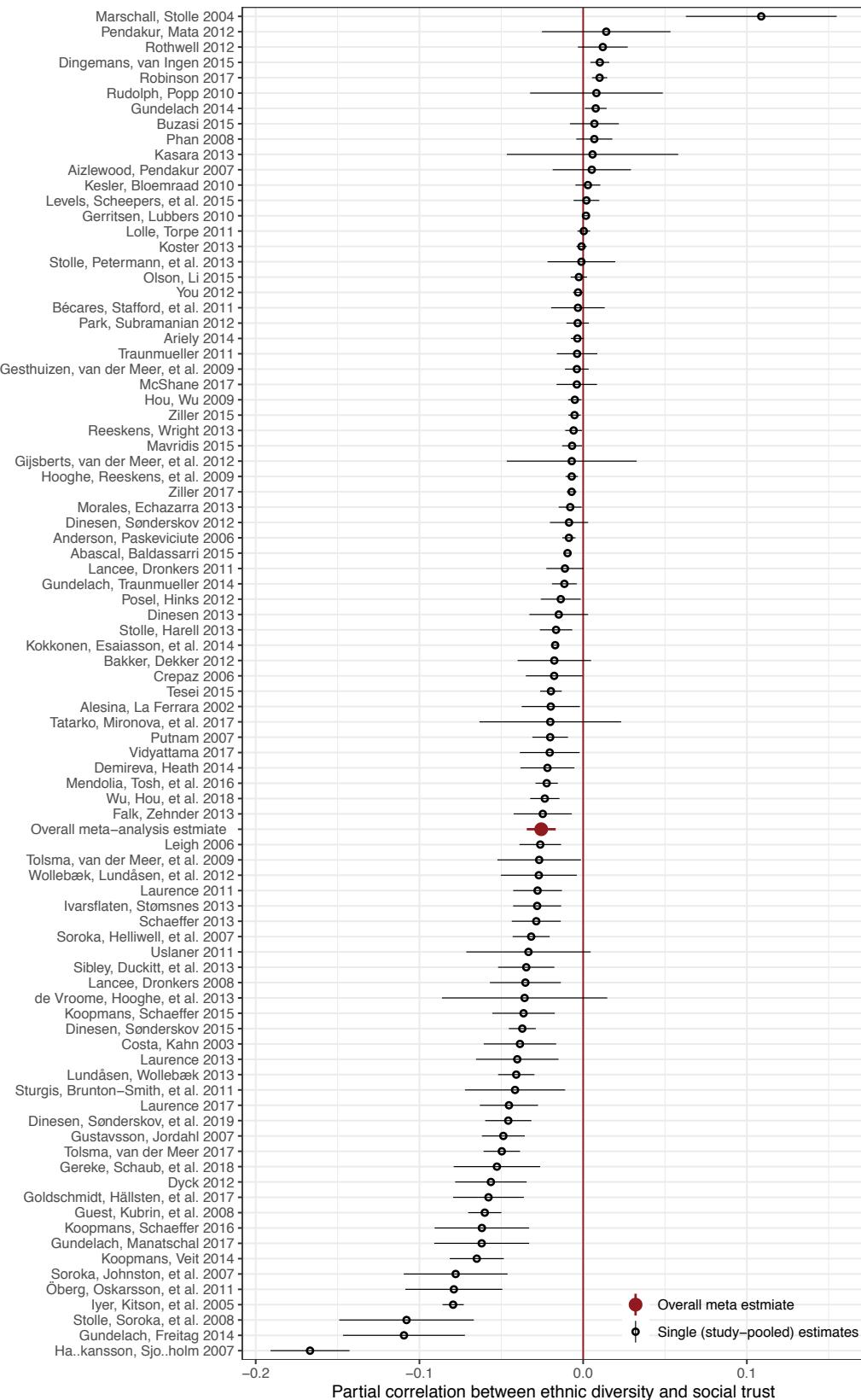
Empirical evidence

In the following, we report four sets of results from the meta-analysis of previous studies of the relationship between ethnic diversity and social trust. First, we report an overall meta estimate of the relationship across all coded studies. Second, we examine how the relationship varies for different types of trust. Third, we differentiate the effect of ethnic diversity by the size of the context unit in question. Fourth, we examine how the relationship between diversity and trust is affected by the inclusion of various control variables and/or mediators.

An overall meta estimate

Figure 1 shows a forest plot of the average study-pooled estimate and associated confidence intervals for each of the 87 studies coded as well as the overall meta estimate based on all studies.

Figure 1: Forest plot of study-pooled estimates of the relationship between ethnic diversity and trust



Note: 87 study-pooled partial correlation coefficients with associated 95% confidence intervals based on 1,001 estimates. The complete bibliography is found in Online Supplement D.

The most important insight from the forest plot is that, across studies, the overall meta estimate of the relationship between ethnic diversity and social trust is negative and significantly different from zero; trust is on average lower in more ethnically diverse contexts. As the figure shows, the overall meta estimate roughly parallels the study-pooled estimate from several studies focusing on ethnic diversity in relatively local contexts in a range of developed countries, including the United States (Alesina & La Ferrara 2002; Putnam 2007), Britain (Laurence 2011), Germany (Schaeffer 2013) and Denmark (Dinesen & Sønderskov 2015). In substantive terms, the partial correlation of -0.0256 ($se = 0.0044$) between ethnic diversity and trust is rather modest. Under the scenario of our back-of-the-envelope calculation (see above), it corresponds to a 0.66% increase in the aggregate between-context unit R^2 after all other variables in the model have been accounted for (see Online Supplement C).

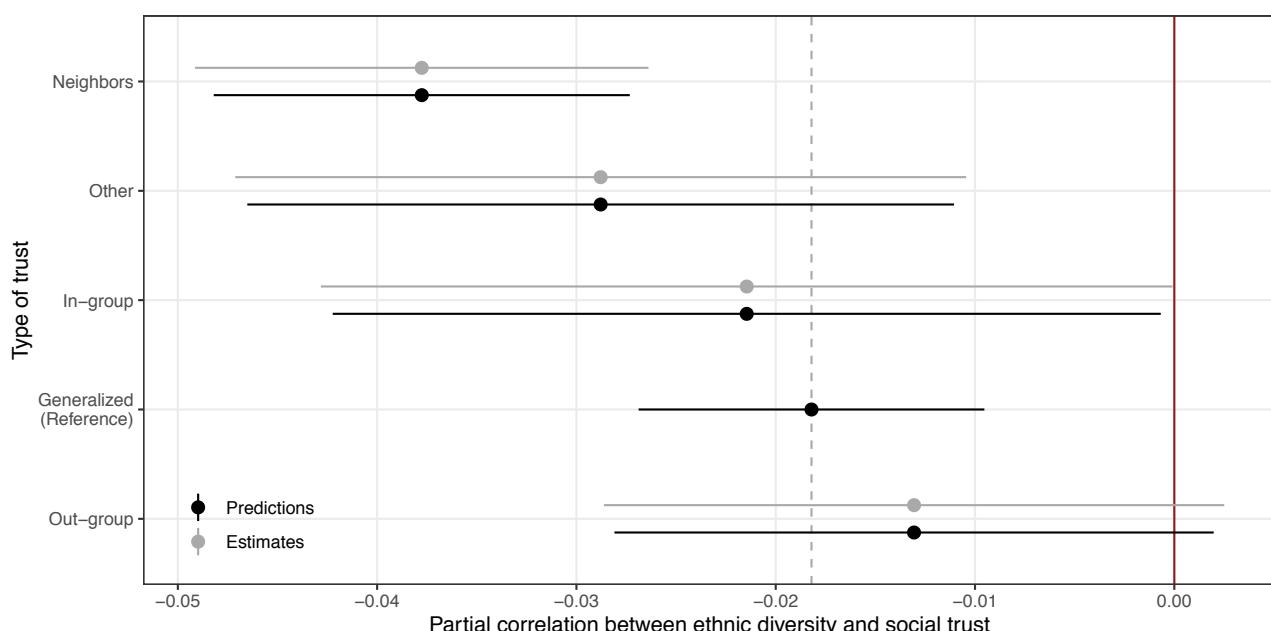
The forest plot also reveals variation across studies. Most studies report a negative relationship centering around the reported overall meta estimate. In most, but far from all, cases, the negative estimates are significantly different from zero. A smaller number of studies report positive relationships, but only a few of the positive study-pooled estimates are significantly different from zero. Notably, the study with the highest positive estimate is based on a rather idiosyncratic sample, namely Marschall & Stolle's (2004) study of racial context and generalized social trust in Detroit in the 1970's. Overall, this indicates that ethnic diversity in residential settings does not lead to "contact effects" under general circumstances.

Taken together, the meta-analytical evidence thus suggests a negative relationship between ethnic diversity and trust. Compared to (some) previous reviews, which have been inconclusive (van der Meer & Tolsma 2014), we can thus more firmly conclude that ethnic diversity is negatively associated with social trust, thereby highlighting the benefit of the meta-analytical approach. We now turn to the analyses differentiating the estimated relationship between ethnic diversity and social trust by various features of the analysis.

Type of trust

Figure 2 shows the overall meta estimate of the relationship between ethnic diversity subset by the specific type of social trust analyzed. In addition to the four types of trust defined above—generalized social trust, out-group trust, in-group trust, and trust in neighbors—we also add a residual "other" category, which contain types of social trust (as defined in the protocol) not covered by the other targets, including composite scales mixing different types of social trust. Generally for Figure 2-4, the black dots refer to the meta estimate for a given subset (Figure 2: type of social trust) with associated confidence intervals. The grey dots and the associated confidence intervals indicate whether the study-pooled estimate for a given subset is significantly different from the reference category (Figure 2: generalized social trust).

Figure 2: Meta estimates of the relationship between ethnic diversity and different types of social trust



Note: Meta estimates (partial correlation coefficients) with associated 95% confidence intervals based on 1,001 estimates reported in 87 studies.

Several interesting findings emerge from Figure 2. First, we observe that the relationship between ethnic diversity and social trust is negative across all types of trust, although in one case (out-group trust) not statistically distinguishable from zero at the .05-level. Yet, there is very substantial variation in the relationship between different trust targets. The strongest correlation is found for trust in neighbors, followed by the residual category, in-group trust, and generalized social trust. All of these estimates are statistically significant. There is thus robust evidence for a negative relationship with ethnic diversity for these types of social trust. The weakest relationship is that between ethnic diversity and out-group trust, which is also insignificant as noted. The estimate for trust in neighbors is roughly double, and significantly different from the estimate for generalized social trust, and almost three times stronger than (and significantly different from) the estimate for out-group trust. The stronger negative relationship observed for trust in neighbors matches what has been found in previous “counting-based” meta-analyses focusing on social cohesion more broadly (Schaeffer 2014; van der Meer & Tolsma 2014). In contrast, the negative relationship found for generalized social trust has not been detected in these analyses, thus highlighting the benefits of our meta-analytical strategy for uncovering weaker relationships.

Implications for the literature. The most obvious insight from Figure 2 is that differentiating by type of trust is important for understanding the relationship between ethnic diversity and social trust. The different types of trust are not only conceptually distinct, but also display different empirical relationships with ethnic diversity. Broad usage of the term “social trust” is therefore unhelpful and scholars should clearly specify the type of trust in question.

The consistent pattern of negative relationships with ethnic diversity across types of social trust supports Putnam’s (2007) anomie (social isolation) mechanism predicting a universal decline in trust of all types in ethnically diverse surroundings. Yet, given the pronounced variation in the strength of this relationship between types of trust, the anomie argument must be supplemented with auxiliary theoretical arguments explaining why ethnic diversity matters more for some forms of social trust than for others.

There is little evidence for theories stressing group threat as a consequence of intergroup competition (see also Koopmans & Schaeffer 2015). As noted earlier, these group-based theories apply most straightforwardly to out- and in-group trust. Weak versions of such theories predict a negative relationship between ethnic diversity and out-group trust, whereas stronger versions in addition predict a positive relationship between ethnic diversity and in-group trust. The results from the meta-analysis—an insignificant negative relationship for out-group trust and a *negative* relationship for in-group trust—clearly runs counter to these predictions. The limited and even contrary evidence vis-à-vis the primary outcomes predicted by group-based theories suggest that they are of limited value in explaining non-group-based forms of trust, including trust in neighbors and trust in people in general.

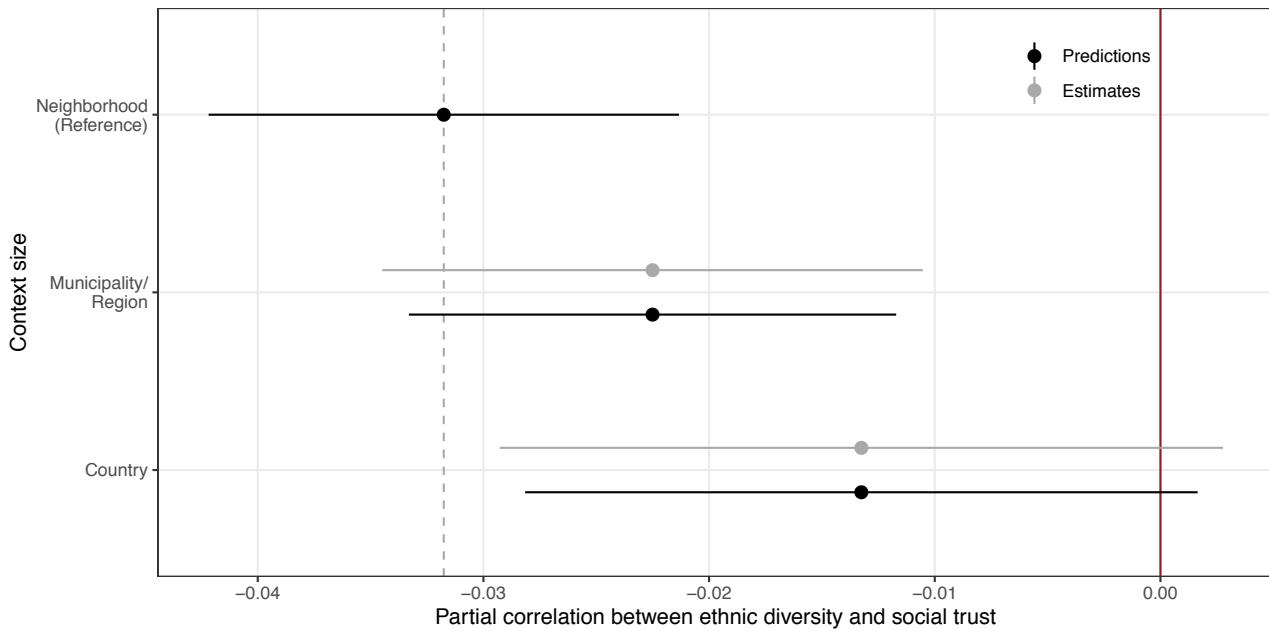
Lastly, a plausible interpretation of the stronger relationship between ethnic diversity and trust in neighbors than for generalized social trust is that exposure to ethnically dissimilar others is a stronger and more directly relevant cue for trust in ones neighbors than for trust in other people in general.

Empirical illustrations. A negative relationship between ethnic diversity and trust in neighbors is one of the most consistent findings in the literature—unsurprisingly, given the target of trust, primarily when studied in more local contexts (see the next section). This has been found in a range of countries, including the United States (Putnam 2007), Britain (Sturgis et al. 2011; Laurence 2011; 2013; 2016), Spain (Morales & Echazarra 2013), Germany (Schaeffer 2013; Gundelach & Freitag 2014), the Netherlands (Tolsma & van der Meer 2017), and Sweden (Lundåsen & Wollebæk 2013). The negative relationship for generalized social trust has been confirmed in the United States (Alesina & Ferrara 2002; Putnam 2007), Australia (Leigh 2006), Norway (Ivarsflaten & Strømsnes 2013), and Denmark (Dinesen & Sønderskov 2012; 2015), with dissenting results from Britain (Sturgis et al. 2011), the Netherlands (Gijsberts et al. 2012), and Sweden (Wollebæk et al. 2012). Illustrating the difference in the effect of ethnic diversity for trust in neighbors and generalized social trust, Sturgis et al. (2011) and Wollebæk et al. (2012) only find significant negative relationships for the former.

Context size

Figure 3 plots the overall meta estimate of the relationship between ethnic diversity and trust broken down by the specific context unit in which ethnic diversity is measured. This ranges from the immediate local context (the neighborhood) over more aggregate local contexts (municipalities/regions) to countries as a whole.

Figure 3: Meta estimates of the relationship between ethnic diversity and social trust for different context sizes



Note: Meta estimates (partial correlation coefficients) with associated 95% confidence intervals based on 1,001 estimates reported in 87 studies.

The figure shows negative relationships between ethnic diversity and social trust across contexts of different sizes. Yet, it also reveals a striking systematic pattern of a stronger negative connection when ethnic diversity is observed more locally; the strongest estimate is observed when diversity is measured at the neighborhood level, followed by the relationship at the municipality/regional level, and, finally, the country level. The estimates for the two more local levels are both statistically significant. The estimate for the country context is significantly lower than for the neighborhood context, and not significantly different from zero. Quantitatively, the relationship between ethnic diversity and social trust is almost three times stronger when diversity is measured at the neighborhood level than at the country level.

Implications for the literature. Finding stronger effects of ethnic diversity on social trust in more proximate environments corroborates the general theoretical assumption that ethnic diversity is more consequential for trust when out-group members are closer by and therefore more directly visible (Dinesen & Sønderskov 2015).

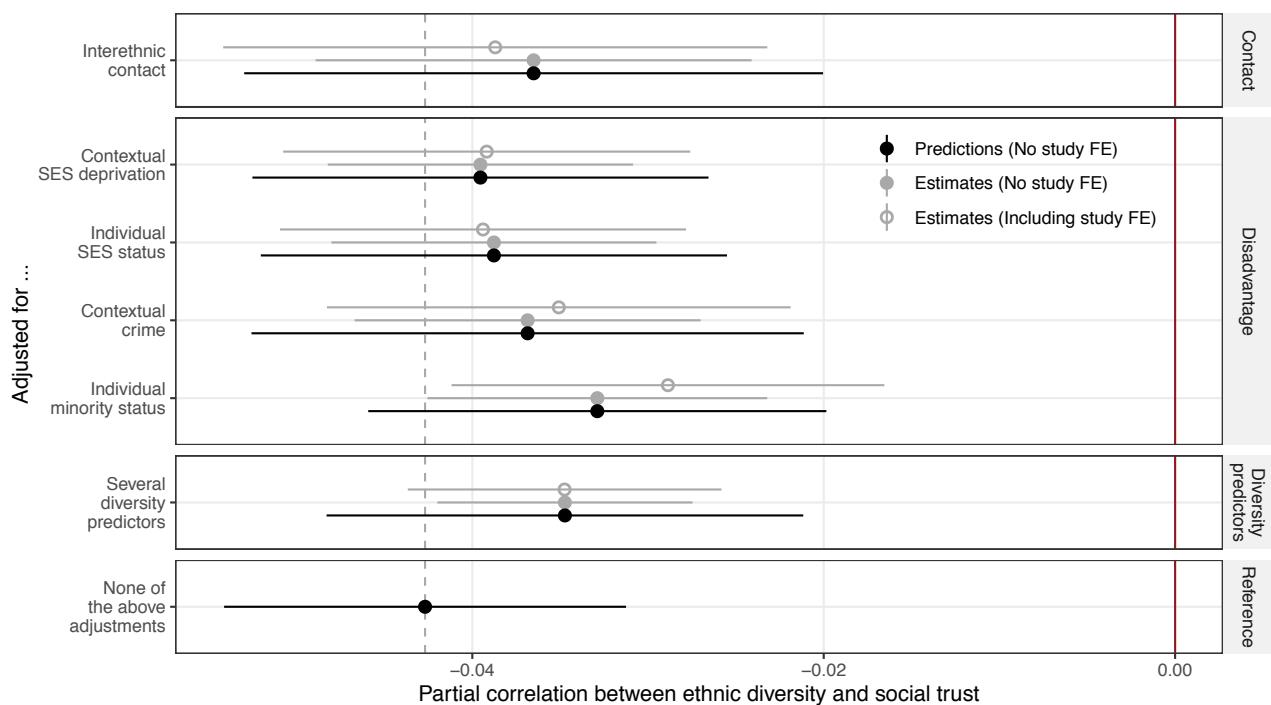
Empirical illustrations. Representative of the estimates reported in Figure 3, extant studies have relatively consistently reported a significant negative relationship between neighborhood-level ethnic diversity and various forms of social trust (primarily for trust in neighbors and, less consistently, for generalized social trust), including in the United States (Putnam 2007), Britain (Sturgis et al. 2011; Laurence 2011 2013; Demireva & Heath 2014), New Zealand (Sibley et al. 2013), Spain (Morales & Echazarra 2013, the Netherlands (Tolsma & van der Meer 2017), Germany (Gundelach & Freitag 2014), Sweden (Lundåsen & Wollebæk 2013) and Denmark (Dinesen & Sønderskov 2015). Similarly, several studies also find significant negative relationships between ethnic diversity and trust—again predominantly trust in neighbors and generalized social trust—at more aggregate contextual levels within countries, for example in the United States (Alesina & Ferrara 2002), Australia (Leigh 2006), Germany (Schaeffer 2013), Sweden (Öberg, Oskarsson & Svensson 2011; Lundåsen & Wollebæk 2013), Norway (Ivarsflaten & Strømsnes 2013), and Denmark (Dinesen &

Sønderskov 2012). Studies from the Netherlands (Tolsma et al. 2009; Gijsberts et al. 2012) are (partial) exceptions to this rule as they mostly find insignificant negative relationships.

Confounding and mediation

Figure 4 shows how the meta estimates of the relationship between ethnic diversity and social trust varies by adjustment for various covariates. The adjusted estimates are compared to zero (the null hypothesis of no diversity effect) (the black dots) as well as an estimate (line 7) not adjusted for any of the control variables or mediators reported in the figure (the grey dots). The latter comparison serves to address potential confounding or mediation. Because some studies include models both with and without a given covariate, we can—as a more rigorous strategy, holding other between-study factors constant—compare estimates within studies (i.e. using study fixed effects). This study fixed effects estimates are indicated by hollow dots.

Figure 4: Meta estimates of the relationship between ethnic diversity and social trust conditioned on covariates



Note: Meta estimates (partial correlation coefficients) with associated 95% confidence intervals based on 1,001 estimates reported in 87 studies.

Contact

The estimated relationship between ethnic diversity and social trust is somewhat weaker in models adjusting for interethnic contact (line 1), but the difference is far from statistically significant. The adjusted estimates are insensitive to the inclusion of study fixed effects, thus showing that when estimates are compared within the same study, taking interethnic contact into account changes the effect of ethnic diversity on social trust very little.

Implications for the literature. Finding that adjusting for interethnic contact does not systematically change the estimated relationship between ethnic diversity and social trust carries the important implication that interethnic *exposure* in a given context and actual interethnic *contact* are not only conceptually, but also

empirically distinct. Consequently, failure to take interethnic contact into account does not strongly impinge on the relationship between ethnic diversity and social trust.

Empirical illustrations. Relatively few studies interested in contact effects sequentially model the relationship between ethnic diversity and social trust with and without controlling for interethnic contact, and the results from these analyses are inconsistent (Demireva & Heath 2014, Koopmans & Veit 2014, Laurence 2011).

Additional tests of the role of contact. Beyond considering interethnic contact as a mediator, two other approaches examine the role of contact. One approach, premised on the idea that the negative ethnic diversity effect on trust may be dampened when accompanied by interethnic contact, examines how interethnic contact moderates the effect of ethnic diversity on trust (Stolle et al. 2008). Several studies find that more contact with out-group members (or, by proxy, neighbors), tends to dampen the negative relationship between ethnic diversity and social trust (Stolle et al. 2008; Rudolph & Popp 2010; Sturgis et al. 2011, Gundelach & Freitag 2014). While this is an interesting finding, the mirror image is, of course, that the negative relationship is even stronger for those without contact. Further, this line of work is challenged by contact being potentially endogenous to trust as well as by the use of imprecise and biased self-assessments of contact (Dinesen et al. 2019a).

Another approach, moving away from the use of self-assessed contact measures, looks at *contact-prone* contexts to examine whether ethnic diversity may matter differently in settings—e.g. schools, workplaces or voluntary associations—where contact is more likely to emerge and to be of a more repeated nature than in the frequently studied residential context. Results are generally inconsistent. In the school setting, the results are scattered (although mostly negative relationships are reported), varying between countries, types of trust and specific sub-groups (Dinesen 2011; Janmaat 2015). In the associational realm, Dutch studies have found little or mixed relationship between ethnic diversity and social trust (Achbari et al. 2018; van der Meer 2016). Two studies scrutinize the relationship between ethnic diversity in the workplace setting and social trust, using fine-grained registry data from Sweden (Goldschmidt et al. 2017) and Denmark (Dinesen et al. 2019a), respectively. The former finds negative, but statistically insignificant relationships between ethnic diversity and various forms of trust, whereas the latter consistently finds—even using panel data—statistically significant negative relationships between ethnic diversity and generalized social trust. Lastly, a field experiment examines the effect of sharing a room with ethnic minority members during an eight-week recruit period in the Norwegian army on trust in minority members in subsequent trust games, and finds contact effects (Finseraas et al. Forthcoming). This is a convincing demonstration that under certain conditions, contact-prone contexts can stimulate certain forms of trust. However, given the “strong” and idiosyncratic nature of the treatment, the generalizability of this finding is questionable. Taken together, the evidence from contexts more contact-prone than the residential setting is thus inconsistent, and more studies of such extra-residential contexts are warranted to understand how ethnic diversity in all domains of life—contact-prone or not—shape social trust.

Control variables

Lines 2-5 in Figure 4 show the estimated relationship between ethnic diversity and social trust when conditioning on four sets of indicators of social disadvantage and related aspects commonly employed as control variables: individual socioeconomic status (e.g. education or income), individual minority status (e.g., being of immigrant origin or member of a racial minority), contextual socioeconomic deprivation (e.g. mean income or level of unemployment), and contextual crime.

The adjusted estimates after controlling for the four classes of covariates all remain negative and statistically significant. Thus, controlling for socioeconomic disadvantage and related aspects does not change the overall negative relationship between ethnic diversity and social trust. This is underlined by the finding that for three

out of the four classes of covariates (individual socioeconomic status, contextual socioeconomic deprivation, and contextual crime), the adjusted estimate is not significantly different from the unadjusted estimate. Controlling for individual minority status does significantly reduce the estimated relationship between ethnic diversity and social trust, but the reduction is relatively minor (by about one third in the within-study estimates), and the adjusted estimate remains statistically significant by a wide margin. The observed negatively relationship thus first and foremost reflect a contextual effect—rather than being a compositional artifact—of ethnic diversity on social trust.

Implications for the literature. Finding that conditioning on four classes of important covariates does not fundamentally change the relationship between ethnic diversity and social trust implies that even if they are considered strictly exogenous to ethnic diversity, they do not strongly confound the relationship. Importantly, this indicates that ethnic diversity is not merely a placeholder for individual or contextual disadvantage, but rather an independent predictor of social trust. That being said, future observational work should obviously continue to control for indicators of social disadvantage—and other potential confounders—to obtain a more credible estimate of the relationship. However, given the unclear causal status of many covariates vis-à-vis ethnic diversity (and social trust), researchers must exercise great care in their interpretation of the (absence of a) relationship between ethnic diversity and social trust based on models conditioning on such covariates. As a consequence, we strongly advise reporting models both with and without various covariates to understand how covariate conditioning influences the estimated relationship.

Empirical illustrations. Almost all studies control for a range of indicators of disadvantage at both the individual level and the contextual level (e.g., 83% of the estimates are adjusted for minority status, see Figure D.3 in the online supplement), as well as standard demographic controls (e.g. gender and age at the individual level). Only a few studies report several models sequentially adding various control variables to the bivariate model. One example is Sturgis et al. (2011), which report the association between ethnic diversity and measures of social trust, both bivariately and conditioned on a very rich set of individual and contextual covariates. Yet, in this case, adding control variables in a stepwise fashion would have been useful given the unclear causal relationship between several of the controls (e.g. contextual crime or happiness) and both ethnic diversity and social trust, thus potentially inducing post-treatment bias and/or endogeneity bias.

Alternative diversity predictors

Line 6 in Figure 4 plots the estimated relationship between ethnic diversity and social trust for studies simultaneously including different predictors of ethnic diversity, e.g. several measures of ethnic fragmentation and/or measures of concentration of given ethnic out-groups. The plot shows that the overall meta estimate for models with several diversity predictors remains significant, although it is significantly (in the case of the between-study estimate) reduced by about a fifth compared to the overall unadjusted estimate. Controlling for multiple diversity predictors thus influences the strength of the relationship between ethnic diversity and social trust, but does not fundamentally change the relationship.

Implications for the literature. The moderate sensitivity of the estimated relationship between ethnic diversity and trust to controlling for other diversity predictors suggests that one must exercise caution in testing different (sub)mechanisms linking diversity and trust by simultaneously including different diversity measures (Schaeffer 2013; Koopmans & Schaeffer 2015; Dinesen & Sønderskov 2015). The fruitfulness of this approach ultimately depends on the ability to empirically distinguish between the corresponding indicators in a given setting. This also has subtle, but important implications for the intersection between concept use—using a narrow versus a broad conception of ethnic diversity (i.e. ethnic fragmentation *per se* or various

aspects of ethnic composition more broadly understood)—and statistical modeling. Using the narrow conception of diversity, one would be interested in separating out the *specific* effect of ethnic fragmentation from other aspects of the ethnic composition, including ethnic concentration etc. Yet, this can be challenging in practice as the various aspects of ethnic composition are often highly correlated empirically, and therefore bound to explain less of the variance in social trust on their own, which could in turn lead to a faulty conclusion of absence of a relationship between ethnic diversity and trust (or at least an underestimation of it).

Empirical illustrations. Several studies have pointed out the high correlation between different indicators of ethnic diversity (broadly conceived) (Koopmans & Schaeffer 2015; Dinesen & Sønderskov 2015), and Schaeffer (2013) shows that only under rather specific conditions can they be disentangled statistically. Results from the US illustrate the potential consequences of including several diversity measures simultaneously. Alesina & La Ferrara (2002) find that when including measures of racial and ethnic fragmentation, respectively, separately in bi- and multivariate models of generalized social trust, they both display the expected negative relationship. However, when included simultaneously, the coefficient on ethnic fragmentation switches signs—a likely indication of collinearity (they are correlated at 0.56 according to Alesina & Ferrara (2000)). This shows that interpreting the effect of one specific diversity measure in isolation, when including several measures simultaneously, may lead to biased conclusions of the role of diversity for trust. This is relevant for the study by Abascal & Baldassari (2015), which reanalyzes the data on which Putnam's (2007) controversial results were based. In bivariate models, they replicate the negative relationship between ethnic fragmentation at the census tract level and various forms of trust, but in multivariate models, controlling for, *inter alia*, concentration of whites and concentration of US citizens (presumably roughly the inverse of the share of immigrants) at the census tract level (Putnam himself includes only the latter), this relationship is no longer significant. Given that both concentration measures are presumably highly correlated with ethnic fragmentation, this may explain its loss of significance. Further, in some (more parsimonious) analyses, the concentrations of whites and of US citizens are significantly positively correlated with various forms of social trust, and given that they both fall within the broader conception of ethnic diversity as argued above, it is open to interpretation to what extent these results debunk Putnam's findings broadly understood. A sequential building of statistical analyses, examining the internal correlation between various measures of ethnic composition, introducing them separately and, subsequently, simultaneously, in models of social trust, would be helpful in this regard.

Summary of empirical evidence and providing a “best” estimate

In summary, the meta-analysis has generated several insights speaking to various aspects of the debates in the literature presented earlier. First, as a baseline result, across all studies, we observe a statistically significant negative relationship between ethnic diversity and social trust of moderate size. *On average, social trust is thus lower in more ethnically diverse contexts. That being said, the rather modest size of the relationship also implies that apocalyptic claims regarding the severe threat of ethnic diversity for social trust in contemporary societies are exaggerated.*

Second, the negative relationship applies for all types of trust, but with substantial variation in strength between types. The negative relationship is strongest for trust in neighbors, intermediate for in-group trust and generalized social trust, and weakest for out-group trust (for the latter, the relationship is insignificant). *Ethnic diversity thus matters more for trust in people in one's immediate residential setting, but the effect also extends beyond this setting to trust in other people in general.*

Third, ethnic diversity experienced locally—in neighborhoods—matters more for social trust than does ethnic diversity in more aggregate settings. *Ceteris paribus*, this suggests that *proximity to interethnic others is an*

important facilitating condition accentuating the negative relationship between ethnic diversity and social trust.

Fourth, the relationship between ethnic diversity and social trust is only slightly attenuated and remains negative and significant, when controlling for potential confounders/mediators, specifically individual minority background, socioeconomic deprivation (individual and contextual), contextual crime, and interethnic contact. *To properly assess confounding and/or mediation, researchers should sequentially add control variables—tapping social disadvantage or otherwise—with ambiguous causal connections to ethnic diversity in models of social trust.*

Fifth, the diversity-trust connection is reduced (but still significant), when controlling for several predictors of ethnic diversity (conceptualized broadly). At present, *including several—typically highly correlated—diversity predictors to parse out different theoretical mechanisms will often lead to an underestimation of the effect of ethnic diversity on social trust.*

As a logical conclusion of the meta-analysis, it is relevant to ask what is the overall estimate of the relationship between ethnic diversity and social trust when considering the lessons from the review. Figure E.1 in the Online Supplement shows a final overall estimate that focuses only on those 132 estimates reported in 26 studies that study trust in neighbors or in the generalized other (i), focus on small-scale neighborhood contexts (ii) control for individual socio-economic and minority status as well as contextual socio-economic deprivation (iii), and contain only one single ethnic diversity predictor in their model (iv). Because the causal roles of interethnic contact and contextual crime remain ambiguous vis-a-vis ethnic diversity, both estimates from models including and excluding these controls are included in the overall meta estimate. Interestingly, the result of this “best practice” analysis vis-a-vis trust in neighbors and in the generalized other closely mirrors our initially reported finding based on the full sample; we observe a highly significant overall meta partial correlation of -0.0283 ($se = 0.0048$). Narrowing in on estimates based on more appropriate research designs again confirms the overall conclusion drawn from the meta-analysis: ethnic diversity displays a negative relationship with social trust.

Directions for future research

To conclude, we briefly discuss avenues for future research emanating from the insights generated by our meta-analytical status of the literature.

Theorization and corresponding empirical tests of why ethnic diversity erodes trust

It is fair to say that the literature on the relationship between ethnic diversity and social trust has first and foremost been concerned with producing empirical evidence, and that the proliferation of empirical analyses has not been matched with equal theoretical rigor. The potential effect of ethnic diversity on trust has mainly been explained with generic theoretical mechanisms, which are hard to differentiate empirically. As such, there is certainly a need for more elaborate theorization of why ethnic diversity ostensibly is connected to lower trust. As alluded to earlier, the literature on related consequences of ethnic diversity has theorized this link in more detail and could serve as a source of inspiration (e.g. Habayarimana et al. 2007). Similarly, inspiration could be found in the related literature on contextual effects on related constructs, which has seen new theoretical developments regarding when and how ethnic context matters (Hopkins 2010; Enos 2017; Legewie & Schaeffer 2016; Danckert et al. 2017).

The issue of theorization is compounded by the twin issue of corresponding empirical testing. As mentioned above, a common way to tease apart alternative mechanisms is to use different measures of ethnic diversity. Yet, such diversity indicators are notoriously correlated, and therefore this strategy is difficult to employ in practice. One way to bypass this problem is using relational (group-based) diversity measures as proposed

by Koopmans & Schaeffer (2015). Yet, it would also be productive for scholars to think about alternative ways of testing proposed mechanisms. One approach—parallel to testing the contact argument by focusing on contact-prone contexts—is to test the relationship between ethnic diversity and trust in contexts or under circumstances, in which one mechanism is more likely to operate than others.

What mitigates the negative effect – is there a role for policy?

Parallel to an interest in understanding why ethnic diversity erodes trust, it is relevant to ask how—if at all—this negative effect could be mitigated. From the perspective of policymakers, it is especially relevant to understand which public policies or institutional means that are at their disposal towards curbing the negative effect. At present, beyond the contact literature mentioned earlier, relatively limited attention has been paid to this question. Two strands of research addressing this question are worth highlighting. One line of work, also originating in the contact argument, looks at the role of local ethnic segregation (as opposed to integration) as a barrier to interethnic contact, which is then found to accentuate the negative relationship between ethnic diversity and social trust (e.g., Uslaner 2012; Schaeffer 2014). Another line of work looks at how various (local) integration policies moderate the relationship between ethnic diversity and social trust and have found mixed results (Kesler & Bloemraad 2010; Gundelach & Manatschal 2017). These studies provide valuable first steps for exploring the role of policy handles that may be used for alleviating the negative effect of local contextual ethnic diversity on social trust. Future studies could explore these and related ideas further using stronger designs (the noted studies primarily rely on observational cross-sectional designs), e.g. utilizing local housing reforms or gradual implementation of integration policies within countries as sources of quasi-experimental variation in the moderating variable.

Explore the relationship in new contexts

Research on the relationship between ethnic diversity and trust has overwhelmingly focused on the residential context. While this is in some ways understandable—almost everyone has a residential context and spend a significant amount of time there—other spheres of life are clearly also potentially relevant. Further, as noted above, other contexts could structure interethnic interactions in ways so that the relationship between ethnic diversity and social trust may play out differently. Residential contexts are arguably more likely to give way to “mere exposure” than actual contact, which would imply that our conclusions here are disproportionately negative due to our focus on studies of the residential context (Dinesen et al. 2019a). Researchers are therefore well advised to continue exploring the relationship between ethnic diversity and social trust in other spheres of life than the residential context. Further, the interaction between the role of ethnic diversity in different contexts—e.g., do interactions with interethnic others in one context mute or enhance those in another—is also an interesting question for further research.

Increased focus on causal inference

Following from the fact that the vast majority of existing studies are based on observational cross-sectional data, the detected negative relationship ethnic diversity and social trust cannot be given a causal interpretation. As we have discussed, most studies control statistically for potential confounders to rule out some sources of confounding, but this approach comes with its own problems as it is often ambiguous which covariates to control for.

At this point, it seems sensible for the literature on the relationship between ethnic diversity and trust to begin applying more sophisticated strategies to strengthen causal identification. Like the study of related contextual effects (Laurence & Bentley 2016; Danckert et al. 2017), the use of panel data, which allow for mapping changes in ethnic diversity to changes in social trust, and thereby bypassing all time-invariant confounding, would be a logical next step with the emergence of more panel data sets with local geographic identifiers. To our knowledge, only the above-mentioned study by Dinesen et al. (2019a) has applied panel

data, replicating the negative cross-sectional relationship between ethnic diversity and generalized social trust in workplaces in Denmark.

Similarly, and again parallel to other related fields (Enos 2017; Hangartner et al. 2019), the use of field experiments—where exposure to ethnic diversity is randomly assigned by the researcher—and natural experiments—in which quasi-random geographic or temporal disjunctions in exposure to diversity is utilized—are obvious methodological advances pertinent for future research on the relationship between ethnic diversity and social trust. There are already promising movements in this direction. Most notably, the above-mentioned field experiment from Norway, which randomized exposure to ethnic minority members via room sharing during a recruitment period in the army (Finseraas et al. 2019). Another, less demanding, approach, along the lines of Koopmans & Veit (2014), is to experimentally prime ethnic diversity among survey respondents to study its effect on trust.

Connecting the micro-level relationship and macro-level temporal patterns

As stated in the introduction, the premise of the apocalyptic claim regarding the negative effect of ethnic diversity on social trust is that this leads to an erosion of social trust over time as countries diversify. Inferring from the robust negative relationship between contextual ethnic diversity and social trust detected in our meta-analysis, we would expect, *ceteris paribus*, a limited decline in trust over time as countries become increasingly ethnically diverse due to immigration. There is some evidence for this proposition *vis-à-vis* generalized social trust in a sample of European countries (from 2002 to 2012) (Olivera, 2015).

However, over a longer time span and across a broader set of countries, the relationship between ethnic diversity and generalized social trust appears very heterogeneous with no immediately obvious trend (Ortiz-Ospina & Roser 2019). Of course, the famous decline in social trust in the United States from the 1960s onwards—a period of increasing ethnic diversity—fits the pattern, but also lends itself to several other explanations (Putnam 2000). Yet, other countries have experienced marked increases in trust over the last decades. Perhaps most strikingly, Denmark, a country that has diversified at a considerable pace since 1980, saw a dramatic increase in generalized social trust—from 47% trusting others in 1979 to 79% in 2009—in this period. Further, ethnic diversity in neighborhoods, municipalities and workplaces (but not in schools) have all been found to be negatively related to generalized social trust in Denmark during this period (Dinesen 2011, Dinesen & Sønderskov 2012, 2015; Dinesen, Sønderskov and Thuesen 2019a), thus highlighting the sometimes dramatically diverging micro-level and over-time macro-level relationships.

One straightforward explanation for the lacking materialization of the negative individual-level relationship between contextual ethnic diversity and social trust at the aggregate level is that the negative diversity effect is overridden by other factors more consequential for trust, e.g. well-functioning government institutions (Sønderskov & Dinesen 2014; Charron & Rothstein 2016). A more subtle possibility is that this is caused by increased ethnic segregation at the local level, which in turn implies less exposure to ethnic out-groups and the associated negative consequences for social trust that we have demonstrated. Yet, this could also have exacerbated the negative effects as stipulated above. Future theoretical and empirical work seeking to integrate the micro- and macro-level patterns in the relationship between ethnic diversity and social trust would indeed be valuable.

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